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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,994	08/21/2003	Heinz Willebrand	81598 (7293)	1124
22242	7590	11/17/2005	EXAMINER PHAN, HANH	
FITCH EVEN TABIN AND FLANNERY 120 SOUTH LA SALLE STREET SUITE 1600 CHICAGO, IL 60603-3406			ART UNIT 2638	PAPER NUMBER

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,994	WILLEBRAND ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to the RCE filed on 08/24/2005.
2. In claim 17, line 7, the phrase "line of site" should be changed to – line of sight--.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

-In claims 1 and 18, the phrases " **at least one laser portion for transmitting data**" and " **at least one radio frequency portion for transmitting data**" are not clear. What element generates the laser portion. What element generates the radio frequency. How the laser portion transmits the data, and how the radio frequency portion transmits the data.

-In claims 1 and 18, the phrase "**a controller connected with the laser portion and the radio frequency portion**" is not clear.

-In claims 3, 4, 7, 9, 20 and 21, the phrases " **the controller is configured to receive environment information**" and "the portions of the data to be transmitted through **the laser portion and the radio frequency portion are adjusted** by the controller" are not clear. How the environment information is generated and transmitted.

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What the environment information is defined. What element of the laser portion and radio frequency portion are adjusted by the controller. For example, the optical power of the laser portion is adjusted by the controller.

-In claims 10, 12, 14 and 22, the phrase “ **the portions of the data to be transmitted through the laser portion are adjusted by the controller based on their transmit and receive strengths**” is not clear. What element of the laser portion and radio frequency portion are adjusted by the controller. For example, the optical power of the laser portion is adjusted by the controller.

-In claim 11, the phrase “ **the plurality of latches and logic device operate to provide adjustment levels for the portions of the data to be transmitted through the laser portion and the radio frequency portion**” is not clear. What element of the laser portion and radio frequency portion are adjusted by the controller. What the adjustment levels by the controller based on.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 5, 6, 18 and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-38 of U.S. Patent No. 6,763,195 (Willebrand et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations recited in claims 1, 5, 6, 18 and 23 of the instant application are encompassed by claims 1-38 of U.S. Patent No. 6,763,195 (Willebrand et al).

Regarding claims 1 and 18, Willebrand et al (U.S. Patent No. 6,763,195) discloses a node incorporating hybrid radio frequency and optical wireless communication links, the node comprising:

- at least one laser portion for transmitting data;
- at least one radio frequency portion for transmitting data;
- a data receiver for receiving data from a data source; and
- a controller configured to receive data from a data source and connected with the laser portion and the radio frequency portion to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion (see claims 1 and 3-8 of U.S. Patent No. 6,763,195).

Regarding claim 5, Willebrand et al (U.S. Patent No. 6,763,195) discloses the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (see claims 1 and 3-8 of U.S. Patent No. 6,763,195).

Regarding claims 6 and 23, Willebrand et al (U.S. Patent No. 6,763,195) discloses the laser portion and the radio frequency portion are configured to transmit in multiple channels (see claims 1 and 3-8 of U.S. Patent No. 6,763,195).

7. Claims 1, 5, 6, 18 and 23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-45 of copending Application No. 10/840,172 (Willebrand et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations recited in claims 1, 5, 6, 18 and 23 of the instant application are encompassed by claims 1-45 of copending Application No. 10/840,172 (Willebrand et al).

Regarding claims 1 and 18, Willebrand et al (copending Application No. 10/840,172) discloses a node incorporating hybrid radio frequency and optical wireless communication links, the node comprising:

- at least one laser portion for transmitting data;
- at least one radio frequency portion for transmitting data;
- a data receiver for receiving data from a data source; and
- a controller configured to receive data from a data source and connected with the laser portion and the radio frequency portion to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion (see claims 1-7 and 15-24 of copending Application No. 10/840,172).

Regarding claim 5, Willebrand et al discloses the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (see claims 1-7 and 15-24 of copending Application No. 10/840,172).

Regarding claims 6 and 23, Willebrand et al discloses the laser portion and the radio frequency portion are configured to transmit in multiple channels (see claims 1-7 and 15-24 of copending Application No. 10/840,172).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 1, 5, 6, 18 and 23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 (re-numbered) of copending Application No. 09/835,866 (Willebrand). Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations recited in claims 1, 5, 6, 18 and 23 of the instant application are encompassed by claims 1-7 of copending Application No. 09/835866 (Willebrand).

Regarding claims 1 and 18, Willebrand (copending Application No. 09/835,866) discloses a node incorporating hybrid radio frequency and optical wireless communication links, the node comprising:

- at least one laser portion for transmitting data;
- at least one radio frequency portion for transmitting data;
- a data receiver for receiving data from a data source; and

a controller configured to receive data from a data source and connected with the laser portion and the radio frequency portion to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion (see claims 1-7 and 15-24 of copending Application No. 09/835,866).

Regarding claim 5, Willebrand discloses the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (see claims 1-7 of copending Application No. 09/835,866).

Regarding claims 6 and 23, Willebrand discloses the laser portion and the radio frequency portion are configured to transmit in multiple channels (see claims 1-7 of copending Application No. 09/835,866).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 2, 5, 6, 8, 18, 19, 23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vollert (Pub. No. DE 4433896 C1 cited by applicant) in view of Mullaly et al (US Patent No. 6,812,881).

Regarding claims 1 and 18, referring to Figure 1, Vollert discloses a node incorporating hybrid radio frequency and optical wireless communication links, the node comprising:

- at least one infrared portion for transmitting data (i.e., infrared portion for transmitting data IUS, Fig. 1);

- at least one radio frequency portion for transmitting data (i.e., radio frequency portion for transmitting data FUS, Fig. 1);

- a data receiver (Fig. 1) for receiving data from a data source; and

- a controller (Fig. 1) configured to receive data from a data source and connected with the infrared portion and the radio frequency portion to allocate portions of the data to be transmitted through the infrared portion and the radio frequency portion (see abstract section).

Vollert differs from claims 1 and 18 in that he fails to teach the optical portion for transmitting data is a laser portion for transmitting data. However, Mullaly in US Patent No. 6,812,881 teaches the optical portion for transmitting data is a laser portion for transmitting data (Fig. 2b, col. 9, lines 17-33). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical portion for transmitting data is a laser portion for transmitting data as taught by Mullaly in the system of Vollert. One of ordinary skill in the art would have been motivated to do this since Mullaly suggests in column 9, lines 17-33 that using such the optical portion for transmitting data is a laser portion for transmitting data have advantage of allowing transmitting data with high speed, high capacity and for longer distance.

Regarding claims 2, 8 and 19, the combination of Vollert and Mullaly teaches the controller is configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion and the radio frequency portion (Fig. 1 of Vollert and Fig. 2b of Mullaly).

Regarding claim 5, the combination of Vollert and Mullaly teaches the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (Fig. 1 of Vollert and Fig. 2b of Mullaly).

Regarding claims 6 and 23, the combination of Vollert and Mullaly teaches the laser portion and the radio frequency portion are configured to transmit in multiple channels (Fig. 1 of Vollert and Fig. 2b of Mullaly).

Regarding claims 25-28, the combination of Vollert and Mullaly teaches wherein at least a portion of the network is configured with a ring topology (Fig. 1 of Vollert).

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vollert (Pub. No. DE 4433896 C1 cited by applicant) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Avakian (US Patent No. 4,727,600).

Regarding claim 17, Vollert as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach an optical reflector is used to deflect transmissions from the laser portion. However, Avakian in US Patent No. 4,727,600 teaches an optical reflector is used to deflect transmissions from the laser portion (Fig. 1, col. 4, lines 20-67). Therefore, it would have been obvious to one having skill in the

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art at the time the invention was made to incorporate the optical reflector is used to deflect transmissions from the laser portion as taught by Avakian in the system of Vollert modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Avakian suggests in column 4, lines 20-67 that using such the optical reflector is used to deflect transmissions from the laser portion has advantage of allowing extending the network and maintaining the communications without the need for a strict line of sight connection.

12. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vollert (Pub. No. DE 4433896 C1 cited by applicant) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Perdue et al (US Patent No. 6,529,556).

Regarding claims 15 and 24, Vollert as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach the laser portion and radio frequency portion are configured to transmit and receive in tandem. However, Perdue in US Patent No. 6,529,556 teaches the laser portion and radio frequency portion are configured to transmit and receive in tandem (Figs. 4 and 5, col. 5, lines 39-67 and col. 6, lines 1-57). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the laser portion and radio frequency portion are configured to transmit and receive in tandem as taught by Perdue in the system of Vollert modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Perdue suggests in column 5, lines 39-67 and col. 6, lines 1-57 that using such the laser portion and radio frequency portion are configured to transmit and

receive in tandem have advantage of allowing providing a hybrid serial link such that the RF signals can be transmitted without affecting the IR signal transmissions.

13. Claims 1, 2, 5, 6, 8, 18, 19, 23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US Patent No. 4,904,993 cited by applicant) in view of Mullaly et al (US Patent No. 6,812,881).

Regarding claims 1 and 18, referring to Figure 1, Sato discloses a node incorporating hybrid radio frequency and optical wireless communication links, the node comprising:

- at least one optical portion for transmitting data (i.e., optical transmitter 14 and 13, Fig. 1);

- at least one radio frequency portion for transmitting data (i.e., RF transmitter 12 and 11, Fig. 1);

- a data receiver (i.e., data supply 15 and data generator 16, Fig. 1) for receiving data from a data source; and

- a controller (i.e., switches 17 and 18, Fig. 1) configured to receive data from a data source and connected with the infrared portion and the radio frequency portion to allocate portions of the data to be transmitted through the infrared portion and the radio frequency portion (col. 2, lines 25-47 lines 51-67 and col. 3, lines 1-3).

Sato differs from claims 1 and 18 in that he fails to teach the optical portion for transmitting data is a laser portion for transmitting data. However, Mullaly in US Patent No. 6,812,881 teaches the optical portion for transmitting data is a laser portion for

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transmitting data (Fig. 2b, col. 9, lines 17-33). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical portion for transmitting data is a laser portion for transmitting data as taught by Mullaly in the system of Sato. One of ordinary skill in the art would have been motivated to do this since Mullaly suggests in column 9, lines 17-33 that using such the optical portion for transmitting data is a laser portion for transmitting data have advantage of allowing transmitting data with high speed, high capacity and for longer distance.

Regarding claims 2, 8 and 19, the combination of Sato and Mullaly teaches the controller is configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion and the radio frequency portion (Fig. 1 of Sato and Fig. 2b of Mullaly).

Regarding claim 5, the combination of Sato and Mullaly teaches the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (Fig. 1 of Sato and Fig. 2b of Mullaly).

Regarding claims 6 and 23, the combination of Sato and Mullaly teaches the laser portion and the radio frequency portion are configured to transmit in multiple channels (Fig. 1 of Sato and Fig. 2b of Mullaly).

Regarding claims 25-28, the combination of Sato and Mullaly teaches wherein at least a portion of the network is configured with a ring topology (Fig. 1 of Sato).

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14. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US Patent No. 4,904,993 cited by applicant) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Avakian (US Patent No. 4,727,600).

Regarding claim 17, Sato as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach an optical reflector is used to deflect transmissions from the laser portion. However, Avakian in US Patent No. 4,727,600 teaches an optical reflector is used to deflect transmissions from the laser portion (Fig. 1, col. 4, lines 20-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical reflector is used to deflect transmissions from the laser portion as taught by Avakian in the system of Sato modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Avakian suggests in column 4, lines 20-67 that using such the optical reflector is used to deflect transmissions from the laser portion has advantage of allowing extending the network and maintaining the communications without the need for a strict line of sight connection.

15. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US Patent No. 4,904,993 cited by applicant) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Perdue et al (US Patent No. 6,529,556).

Regarding claims 15 and 24, Sato as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach the laser portion and radio frequency portion are configured to transmit and receive in tandem. However, Perdue in US Patent

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No. 6,529,556 teaches the laser portion and radio frequency portion are configured to transmit and receive in tandem (Figs. 4 and 5, col. 5, lines 39-67 and col. 6, lines 1-57).

Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the laser portion and radio frequency portion are configured to transmit and receive in tandem as taught by Perdue in the system of Sato modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Perdue suggests in column 5, lines 39-67 and col. 6, lines 1-57 that using such the laser portion and radio frequency portion are configured to transmit and receive in tandem have advantage of allowing providing a hybrid serial link such that the RF signals can be transmitted without affecting the IR signal transmissions.

16. Claims 1, 2, 5, 6, 8, 18, 19, 23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavrel (US Patent No. 5,585,953) in view of Mullaly et al (US Patent No. 6,812,881).

Regarding claims 1 and 18, referring to Figure 1, Zavrel discloses a node incorporating hybrid radio frequency and optical wireless communication links, the node comprising:

- at least one infrared portion for transmitting data (i.e., IR transmitter 24, Fig. 1);

- at least one radio frequency portion for transmitting data (i.e., RF transmitter 12, Fig. 1);

- a data receiver (i.e., data controller 16, Fig. 2) for receiving data from a data source; and

a controller (i.e., switches 20 and 22, Fig. 1) configured to receive data from a data source and connected with the infrared portion and the radio frequency portion to allocate portions of the data to be transmitted through the infrared portion and the radio frequency portion (col. 1, lines 62-67 and col. 2, lines 1-11).

Zavrel differs from claims 1 and 18 in that he fails to teach the optical portion for transmitting data is a laser portion for transmitting data. However, Mullaly in US Patent No. 6,812,881 teaches the optical portion for transmitting data is a laser portion for transmitting data (Fig. 2b, col. 9, lines 17-33). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical portion for transmitting data is a laser portion for transmitting data as taught by Mullaly in the system of Zarel. One of ordinary skill in the art would have been motivated to do this since Mullaly suggests in column 9, lines 17-33 that using such the optical portion for transmitting data is a laser portion for transmitting data have advantage of allowing transmitting data with high speed, high capacity and for longer distance.

Regarding claims 2, 8 and 19, the combination of Zavrel and Mullaly teaches the controller is configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion and the radio frequency portion (Fig. 1 of Zarel and Fig. 2b of Mullaly).

Regarding claim 5, the combination of Zavrel and Mullaly teaches the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (Fig. 1 of Zarel and Fig. 2b of Mullaly).

Regarding claims 6 and 23, the combination of Zarel and Mullaly teaches the laser portion and the radio frequency portion are configured to transmit in multiple channels (Fig. 1 of Zarel and Fig. 2b of Mullaly).

Regarding claims 25-28, the combination of Zavrel and Mullaly teaches wherein at least a portion of the network is configured with a ring topology (Fig. 1 of Zavrel).

17. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zavrel (US Patent No. 5,585,953) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Avakian (US Patent No. 4,727,600).

Regarding claim 17, Zavrel as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach an optical reflector is used to deflect transmissions from the laser portion. However, Avakian in US Patent No. 4,727,600 teaches an optical reflector is used to deflect transmissions from the laser portion (Fig. 1, col. 4, lines 20-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical reflector is used to deflect transmissions from the laser portion as taught by Avakian in the system of Zavrel modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Avakian suggests in column 4, lines 20-67 that using such the optical reflector is used to deflect transmissions from the laser portion has advantage of allowing extending the network and maintaining the communications without the need for a strict line of sight connection.

18. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavrel (US Patent No. 5,585,953) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Perdue et al (US Patent No. 6,529,556).

Regarding claims 15 and 24, Zavrel as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach the laser portion and radio frequency portion are configured to transmit and receive in tandem. However, Perdue in US Patent No. 6,529,556 teaches the laser portion and radio frequency portion are configured to transmit and receive in tandem (Figs. 4 and 5, col. 5, lines 39-67 and col. 6, lines 1-57). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the laser portion and radio frequency portion are configured to transmit and receive in tandem as taught by Perdue in the system of Zavrel modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Perdue suggests in column 5, lines 39-67 and col. 6, lines 1-57 that using such the laser portion and radio frequency portion are configured to transmit and receive in tandem have advantage of allowing providing a hybrid serial link such that the RF signals can be transmitted without affecting the IR signal transmissions.

19. Claims 1, 2, 5, 6, 8, 18, 19, 23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko (US Patent No. 5,999,294) in view of Mullaly et al (US Patent No. 6,812,881).

Regarding claims 1 and 18, referring to Figures 1-4, Petsko discloses a node incorporating hybrid radio frequency and optical wireless communication links, the node comprising:

- at least one infrared portion for transmitting data (i.e., infrared portion for transmitting data 182, Fig. 4);

- at least one radio frequency portion for transmitting data (i.e., radio frequency portion for transmitting data 324, Fig. 4);

- a data receiver (Fig. 4) for receiving data from a data source; and

- a controller (Fig. 4) configured to receive data from a data source and connected with the infrared portion and the radio frequency portion to allocate portions of the data to be transmitted through the infrared portion and the radio frequency portion (col. 4, lines 35-52, col. 5, lines 5-32 and col. 6, lines 46-57).

Petsko differs from claims 1 and 18 in that he fails to teach the optical portion for transmitting data is a laser portion for transmitting data. However, Mullaly in US Patent No. 6,812,881 teaches the optical portion for transmitting data is a laser portion for transmitting data (Fig. 2b, col. 9, lines 17-33). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical portion for transmitting data is a laser portion for transmitting data as taught by Mullaly in the system of Petsko. One of ordinary skill in the art would have been motivated to do this since Mullaly suggests in column 9, lines 17-33 that using such the optical portion for transmitting data is a laser portion for transmitting data have advantage of allowing transmitting data with high speed, high capacity and for longer distance.

Regarding claims 2, 8 and 19, the combination of Petsko and Mullaly teaches the controller is configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion and the radio frequency portion (Fig. 4 of Petsko and Fig. 2b of Mullaly).

Regarding claim 5, the combination of Petsko and Mullaly teaches the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (Fig. 4 of Petsko and Fig. 2b of Mullaly).

Regarding claims 6 and 23, the combination of Petsko and Mullaly teaches the laser portion and the radio frequency portion are configured to transmit in multiple channels (Fig. 4 of Petsko and Fig. 2b of Mullaly).

Regarding claims 25-28, the combination of Petsko and Mullaly teaches wherein at least a portion of the network is configured with a ring topology (Fig. 4 of Petsko).

20. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko (US Patent No. 5,999,294) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Avakian (US Patent No. 4,727,600).

Regarding claim 17, Petsko as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach an optical reflector is used to deflect transmissions from the laser portion. However, Avakian in US Patent No. 4,727,600 teaches an optical reflector is used to deflect transmissions from the laser portion (Fig. 1, col. 4, lines 20-67). Therefore, it would have been obvious to one having skill in the

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art at the time the invention was made to incorporate the optical reflector is used to deflect transmissions from the laser portion as taught by Avakian in the system of Petsko modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Avakian suggests in column 4, lines 20-67 that using such the optical reflector is used to deflect transmissions from the laser portion has advantage of allowing extending the network and maintaining the communications without the need for a strict line of sight connection.

21. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko (US Patent No. 5,999,294) in view of Mullaly et al (US Patent No. 6,812,881) and further in view of Perdue et al (US Patent No. 6,529,556).

Regarding claims 15 and 24, Petsko as modified by Mullaly teaches all the aspects of the claimed invention except fails to teach the laser portion and radio frequency portion are configured to transmit and receive in tandem. However, Perdue in US Patent No. 6,529,556 teaches the laser portion and radio frequency portion are configured to transmit and receive in tandem (Figs. 4 and 5, col. 5, lines 39-67 and col. 6, lines 1-57). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the laser portion and radio frequency portion are configured to transmit and receive in tandem as taught by Perdue in the system of Petsko modified by Mullaly. One of ordinary skill in the art would have been motivated to do this since Perdue suggests in column 5, lines 39-67 and col. 6, lines 1-57 that using such the laser portion and radio frequency portion are configured to transmit and

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receive in tandem have advantage of allowing providing a hybrid serial link such that the RF signals can be transmitted without affecting the IR signal transmissions.

Response to Arguments

22. Applicant's arguments filed 08/24/2005 have been fully considered but they are not persuasive.

The applicant's arguments to claims 1, 2, 5, 6, 8, 18, 19 and 23 are not persuasive. Applicant argues that the cited references (Vollert, Mullaly, Sato, Zavrel and Petsko) fail to the limitation of " **the light source for transmitting data is laser source**" of independent claims 1 and 18. The examiner respectfully disagrees. As indicated in Figure 2b, Mullaly teaches a light emitting diode or laser diode is used by optical transmitter 60 (col. 9, lines 30-32).

Therefore, it is believed that the limitations of claims 1, 2, 5, 6, 8, 19 and 23 are still met by the combination of Vollert, Mullaly, Sato, Zavrel and Petsko, and the rejection is still maintained.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571)272-3078. The fax phone

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number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.


HANH PHAN
PRIMARY EXAMINER